

including assigning each selected portion of said information database one or more scheduled transmission times;

[transmission means] a transmitter, coupled to said [scheduling means] transmission scheduler and said one or more computer memory devices, for transmitting a stream of data packets containing said selected portions of said information database in accordance with said scheduled transmission times;

1 Q said [scheduling means] transmission scheduler [including means for] dividing said selected portions of said information database into a prioritized set of tiers, wherein all the selected portions of said information database in each tier are transmitted at a corresponding repetition rate, wherein the repetition rate for higher priority tiers is higher than the repetition rate for lower priority tiers; and

subscriber stations [which] that receive said transmitted stream of data packets, each subscriber station including [filtering means for storing] a data filter that stores filter data corresponding to a subset of said indices, said filter data specifying a set of requested data packets which comprises a subset of said transmitted data packets, and [for downloading] that downloads into a memory storage device those of said received data packets which match said specified set of requested data packets.

2. (twice amended) The information transmission system of claim 1, wherein

said set of indices include timestamps therein indicating when each said portion of the information database referenced by an index is scheduled to be transmitted; and

said subscriber stations including [means for decoding] data processing apparatus that decodes said timestamps in said indices;

whereby subscribers can be informed as to when a specified portion of the information database will be received.

5. (twice amended) The information transmission system of claim 1,

said [transmission means] transmitter including a central program transmission station [which] that transmits said stream of data packets, and one or more cable television systems [which] that receive the transmitted stream of data packets and retransmit said stream of data packets via cables to a set of subscribers, said central program transmission station (including means for) further transmitting in said stream of data packets special data packets indicating where in said stream of data packets local programming data packets may be inserted; and

one or more of said cable television systems including [means] a data switch for inserting into the stream of retransmitted data packets local programming data packets at positions in said stream of data packets indicated by said special data packets.

6. (twice amended) The information transmission system of claim 1,

said [transmission means] transmitter including a central program transmission station [which] that transmits said stream of data packets, and one or more cable television systems [which] that receive the transmitted stream of data packets and retransmit said stream of data packets via cables to a set of subscribers, said central program transmission station (including means for) furthermore transmitting in said stream of data packets special data packets designated as suitable for pre-emption by local programming; and

one or more of said cable television systems includes [means] a data switch for inserting into the stream of retransmitted data packets additional "local programming" data packets so as to pre-empt said special data packets designated as suitable for pre-emption.

7. (amended) The information transmission system of claim 1, wherein a portion of the transmission bandwidth available to said [transmission means] transmitter is reserved for transmitting portions of said information database requested by subscribers;

said information transmission system including a subscriber request [response means for receiving] receiver that receives requests from subscribers, said requests each specifying a portion of said information database; and

said transmission scheduler [scheduling means including means for] also scheduling transmission of requested portions of said information database.

8. (twice amended) The information transmission system of claim 1, wherein one or more subsets of said subscriber stations are interconnected via a local area network, including a network server [which] that receives said transmitted stream of data packets on behalf of an associated set of subscriber stations, said network server including [means for referencing] a data filter that references a specified set of data packets, said specified set of data packets representing data packets requested by said associated set of subscriber stations, and [means for downloading] that downloads into a memory storage device those of said received data packets which match said specified set of requested data packets;

whereby overhead associated with receiving the stream of data packets and downloading for storage a specified subset thereof is shared by a set of subscribers.

9. (amended) The information transmission system of claim 1, wherein said [transmission means] transmitter transmits said data packets using multiple transmission channels; and said subscriber stations include [means] receiver apparatus for receiving data packets for each of said multiple transmission channels.

10. (amended) The information transmission system of claim 9, wherein

said information database includes video program materials as well as non-video information;

said [transmission means] transmitter transmits data packets containing at least selected portions of said video program materials on at least one of said multiple transmission channels and transmits primarily non-video information on at least one other one of said multiplicity of transmission channels; and

a multiplicity of said subscriber stations include means for receiving and storing video program materials.

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11. (twice amended) The information transmission system of claim 1, said [filtering means] data filter comprising a buffer for temporarily storing received data packets, a filter list storage device for storing said filter data referencing said specified set of requested data packets, and data processing [means] circuitry for comparing said data packets temporarily stored in said buffer with said filter data and then forwarding those data packets in said buffer which match said filter data to a predefined destination;

whereby each subscriber station receives all transmitted data packets but forwards only requested data packets to said predefined destination.

12. (amended) The information transmission system of claim 1, said [filtering means] subscriber stations including [look ahead means for] data processing apparatus that automatically [specifying] specifies additional data packets to be downloaded, wherein said requested data packets and said additional data packets each have associated indices at defined positions in said hierarchically arranged set of indices and said additional data packets are selected using predefined criteria with regard to said defined positions of their associated indices relative to the defined positions of said requested data packets;

whereby said subscriber station automatically downloads data packets containing data related to data contained in requested data packets, thereby anticipating potential additional requests that a user may make and speeding access thereto.

13. (twice amended) An information transmission system comprising:

a set of one or more computer memory devices on which is stored an information database;

database editing means, coupled to said one or more computer memory devices, for generating a set of indices for referencing data in said information database, including distinct indices for referencing distinct portions thereof, and for embedding said indices in said information database; said database editing means further [including means for] embedding in said information database cross-referencing indices for cross-referencing related information;

[transmission means] a transmitter, coupled to said one or more computer memory devices, for transmitting a stream of data packets containing selected portions of said information database; and

a multiplicity of subscriber stations for receiving said transmitted stream of data packets, each subscriber station including [filtering means for storing] a data filter that stores filter data corresponding to a subset of said indices, said filter data specifying a set of requested data packets which comprises a subset of said transmitted data packets, and [for downloading] that downloads into a memory storage device those of said received data packets which match said specified set of requested data packets;

said [filtering means furthermore] subscriber stations including [look ahead means for] data processing apparatus that automatically [adding] adds, in accordance with predefined criteria, data corresponding to ones of said cross-referencing

indices embedded in said downloaded data packets to said filter data so as to specify additional data packets to be downloaded; whereby said subscriber station automatically downloads data packets containing data related to data contained in requested data packets, thereby anticipating potential additional requests that a user may make and speeding access thereto.

14. (twice amended) The information transmission system of claim 13, wherein

said set of indices include timestamps therein indicating when each said portion of the information database referenced by an index is to be transmitted; and

said subscriber stations's data processing apparatus furthermore [including means for] decoding said timestamps in said indices;

whereby subscribers can be informed as to when a specified portion of the information database will be received.

16. (twice amended) The information transmission system of claim 15,

further including [scheduling means] transmission scheduler for scheduling transmission of selected portions of said information database, including assigning each selected portion of said information database one or more scheduled transmission times;

wherein the timestamp in indices referencing portions of the information database not scheduled for transmission is null, indicating that said referenced portions of the information database are transmitted only upon request by subscribers.

17. (twice amended) The information transmission system of claim 13,

said [transmission means] transmitter including a central program transmission station [which] that transmits said stream of data packets, and one or more cable television systems [which]

that receive the transmitted stream of data packets and retransmit said stream of data packets via cables to a set of subscribers, said central program transmission station [including means for] further transmitting in said stream of data packets special data packets indicating where in said stream of data packets local programming data packets may be inserted; and one or more of said cable television systems including [means] a data switch for inserting into the stream of retransmitted data packets local programming data packets at positions in said stream of data packets indicated by said special data packets.

18. (twice amended) The information transmission system of claim 13,

said [transmission means] transmitter including a central program transmission station [which] that transmits said stream of data packets, and one or more cable television systems [which] that receive the transmitted stream of data packets and retransmit said stream of data packets via cables to a set of subscribers, said central program transmission station [including means for] further transmitting in said stream of data packets special data packets designated as suitable for pre-emption by local programming; and

one or more of said cable television systems includes [means] a data switch for inserting into the stream of retransmitted data packets additional "local programming" data packets so as to pre-empt said special data packets designated as suitable for pre-emption.

19. (twice amended) The information transmission system of claim 13,

[said transmission means] including [means for assigning] a transmission scheduler that assigns transmission times to said selected portions of said information database and reserving

transmission times for transmitting portions of said information database requested by subscribers;

said information transmission system including a subscriber request [response means for receiving] receiver that receives requests from subscribers, said requests each specifying a portion of said information database; and

said [transmission means] transmitter [including means for] further transmitting said requested portions of said information database during said reserved transmission times.

20. (twice amended) The information transmission system of claim 13, wherein one or more subsets of said subscriber stations are interconnected via a local area network, including a network server [which] that receives said transmitted stream of data packets on behalf of an associated set of subscriber stations, said network server including [means for referencing] a data filter that references a specified set of requested data packets, said specified set of requested data packets representing all data packets requested by said associated set of subscriber stations, and [means for downloading] that downloads into a memory storage device those of said received data packets which match said specified set of requested data packets;

said network server [further] including [means for adding] data processing apparatus that adds, in accordance with predefined criteria, data packets corresponding to ones of said cross-referencing indices embedded in said downloaded data packets to said set of requested data packets so as to specify additional data packets to be downloaded;

whereby overhead associated with receiving the stream of data packets and downloading for storage a specified subset thereof is shared by a set of subscribers.

21. (amended) The information transmission system of claim 13, wherein said [transmission means] transmitter transmits said data packets using multiple transmission channels; and said subscriber



stations include means for receiving data packets for each of said multiple transmission channels.

22. (amended) The information transmission system of claim 21, wherein

said information database includes video program materials as well as non-video information;

said [transmission means] transmitter transmits data packets containing at least selected portions of said video program materials on at least one of said multiple transmission channels and transmits primarily non-video information on at least one other one of said multiplicity of transmission channels; and

a multiplicity of said subscriber stations include means for receiving and storing video program materials.

23. (twice amended) The information transmission system of claim 13, said [filtering means] data filter including a buffer for temporarily storing received data packets, a filter list storage device for storing said filter data referencing said specified set of requested data packets, and processing means for comparing said data packets temporarily stored in said buffer with said filter data and then forwarding those data packets in said buffer which match said filter data to a predefined destination;

whereby each subscriber station receives all transmitted data packets but forwards only requested data packets to said predefined destination.

24. (amended) The information transmission method of claim <sup>16</sup> 24, wherein

said transmitting step includes transmitting said stream of data packets to one or more cable television systems [which] that receive the transmitted stream of data packets and retransmit said stream of data packets via cables to a set of subscribers.

40. (twice amended) The information transmission method of claim 36,

said transmitting step including transmitting said stream of data packets to one or more cable television systems [which] that receive the transmitted stream of data packets and retransmit said stream of data packets via cables to a set of subscribers, and including in said stream of transmitted data packets special data packets indicating where in said stream of data packets local programming data packets may be inserted; and

one or more of said cable television systems inserting into the stream of retransmitted data packets local programming data packets at positions in said stream of data packets indicated by said special data packets.

41. (twice amended) The information transmission method of claim 40,

said transmitting step including transmitting said stream of data packets to one or more cable television systems [which] that receive the transmitted stream of data packets and retransmit said stream of data packets via cables to a set of subscribers, and including in said stream of data packets special data packets designated as suitable for pre-emption by local programming; and

one or more of said cable television systems inserting into the stream of retransmitted data packets additional "local programming" data packets so as to pre-empt said special data packets designated as suitable for pre-emption.

51. (amended) An information transmission system comprising:

a set of one or more computer memory devices on which is stored an information database;

database editing means, coupled to said one or more computer memory devices, for generating a set of indices for referencing data in said information database, including distinct indices for referencing distinct portions thereof, and for embedding said indices in said information database;

[scheduling means] transmission scheduler for scheduling transmission of selected portions of said information database, including assigning each selected portion of said information database a transmission repetition rate and one or more scheduled transmission times in accordance with said assigned repetition rate;

[transmission means] a transmitter, coupled to said [scheduling means] transmission scheduler and said one or more computer memory devices, for transmitting a stream of data packets containing said selected portions of said information database in accordance with said scheduled transmission times;

subscriber stations [which] that receive said transmitted stream of data packets, each subscriber station including [filtering means for storing] data filter that stores filter data corresponding to a subset of said indices, said filter data specifying a set of requested data packets which comprises a subset of said transmitted data packets, and [for downloading] that downloads into a memory storage device those of said received data packets which match said specified set of requested data packets.

52. (amended) The information transmission system of claim 51, said [transmission means] transmitter including a central program transmission station [which] that transmits said stream of data packets, and one or more cable television systems [which] that receive the transmitted stream of data packets and retransmit said stream of data packets via cables to a set of subscribers, said central program transmission station [including means for] further transmitting in said stream of data packets special data packets indicating where in said stream of data packets local programming data packets may be inserted; and one or more of said cable television systems including [means] a data switch for inserting into the stream of retransmitted data packets local programming data packets at

positions in said stream of data packets indicated by said special data packets.

53. (amended) The information transmission system of claim 51, said [transmission means] transmitter including a central program transmission station [which] that transmits said stream of data packets, and one or more cable television systems [which] that receive the transmitted stream of data packets and retransmit said stream of data packets via cables to a set of subscribers, said central program transmission station [including means for] further transmitting in said stream of data packets special data packets designated as suitable for pre-emption by local programming; and

one or more of said cable television systems includes means for inserting into the stream of retransmitted data packets additional "local programming" data packets so as to pre-empt said special data packets designated as suitable for pre-emption.

54. (amended) The information transmission system of claim 51, wherein said [scheduling means including means for reserving] transmission scheduler reserves transmission times for transmitting portions of said information database requested by subscribers;

said information transmission system including a subscriber request [response means for receiving] receiver that receives requests from subscribers, said requests each specifying a portion of said information database; and

said [transmission means including means for] transmitter further transmitting said requested portions of said information database during said reserved transmission times.

55. (amended) The information transmission system of claim 51, wherein one or more subsets of said subscriber stations are interconnected via a local area network, including a network server [which] that receives said transmitted stream of data

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packets on behalf of an associated set of subscriber stations, said network server including [means for referencing] a data filter that references a set of requested data packets, said set of requested data packets representing data packets requested by said associated set of subscriber stations, and [means for downloading] that downloads into a memory storage device those of said received data packets which match said specified set of requested data packets;

said database editing means further [including means for] embedding in said information database cross-referencing indices for cross-referencing related information;

said network server [further] including [means for adding] data processing apparatus that adds, in accordance with predefined criteria, data packets corresponding ones of said cross-referencing indices embedded in said downloaded data packets to said set of requested data packets so as to specify additional data packets to be downloaded;

whereby overhead associated with receiving the stream of data packets and downloading for storage a specified subset thereof is shared by a set of subscribers.

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60. (amended) The information transmission method of claim 56, said transmitting step including transmitting said stream of data packets to one or more cable television systems [which] that receive the transmitted stream of data packets and retransmit said stream of data packets via cables to a set of subscribers, and including in said stream of data packets special data packets indicating where in said stream of data packets local programming data packets may be inserted; and

one or more of said cable television systems inserting into the stream of retransmitted data packets local programming data packets at positions in said stream of data packets indicated by said special data packets.

61. (amended) The information transmission method of claim 56,

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 said transmitting step including transmitting said stream of data packets to one or more cable television systems [which] that receive the transmitted stream of data packets and retransmit said stream of data packets via cables to a set of subscribers, and including in said stream of transmitted data packets special data packets designated as suitable for pre-emption by local programming; and

one or more of said cable television systems inserting into the stream of retransmitted data packets additional "local programming" data packets so as to pre-empt said special data packets designated as suitable for pre-emption.

46x. (amended) An information transmission system comprising:  
 a set of one or more computer memory devices on which is stored an information database;

database editing means, coupled to said one or more computer memory devices, for generating a set of indices for referencing data in said information database, including distinct indices for referencing distinct portions thereof, and for embedding said indices in said information database; said database editing means further [including means for] embedding in said information database cross-referencing indices for cross-referencing related information;

[transmission means] a transmitter, coupled to said one or more computer memory devices, for transmitting a stream of data packets containing said selected portions of said information database;

subscriber stations that each receive said transmitted stream of data packets, each subscriber station including [filtering means for storing] data filter that stores filter data, said filter data specifying a set of requested data packets which comprises a subset of said transmitted data packets, and [for downloading] that downloads into a memory storage device associated with said each subscriber station those of said

received data packets which match said filter data stored by said each subscriber station;

said subscriber stations including a network server interconnected via a local area network to a set of network subscriber stations;

said network server including [means for receiving] a receiver that receives said transmitted stream of data packets on behalf of said network subscriber stations; said filter data stored by said network server referencing a specified set of requested data packets, said specified set of requested data packets representing data packets requested by said network subscriber stations;

36 said network server [further] including [means for specifying] data processing apparatus that specifies additional data packets to be downloaded into said memory storage device associated with said network server by automatically adding to said filter data stored by said network server, in accordance with predefined criteria, data corresponding to ones of said cross-referencing indices embedded in said data packets downloaded by said network server;

whereby overhead associated with receiving the stream of data packets and downloading for storage a specified subset thereof is shared by a set of network subscriber stations.

4866 (amended) An information transmission system comprising:

a set of one or more computer memory devices on which is stored an information database;

39 database editing means, coupled to said one or more computer memory devices, for generating a set of indices for referencing data in said information database, including distinct indices for referencing distinct portions thereof, and for embedding said indices in said information database;

[transmission means] a transmitter, coupled to said one or more computer memory devices, for transmitting a stream of data